

Headquarters U.S. Air Force

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8280 - Air Force EO 13423 Toxic/Chemical Reduction Efforts



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- **Executive Order (EO) 13423**
- **Key Elements of the AF Hazardous Chemicals Reduction Plan**
- **Planned Environment, Safety, and Occupational Health (ESOH)/ Hazardous Materials Management Process (HMMP) Improvements**
- **AF Toxic and Hazardous Chemical Reduction Goals**
- **New Policy: Minimizing the Use of Hexavalent Chromium**



- **EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, signed 24 January 2007**
- **Key EO Sections**
 - **Environmental Management Systems (EMS)**
 - **Green Procurement**
 - **Solid Waste Management and Pollution Prevention (P2)**
 - **Toxic/hazardous chemical reduction plan**
 - **Recycling goals and metrics**
 - **Electronic Equipment Procurement, Use, and Disposal**
 - **Facility Energy Initiatives**
 - **Non-tactical Vehicles**



- **Office of the Federal Environmental Executive (OFEE) developed EO implementing guidance**
- **OSD submitted *DoD Toxic and Hazardous Chemical Reduction Plan*, 1 Feb 08**
 - **Established a lifecycle framework for describing chemical reduction efforts**
 - **Required Services to develop chemical reduction goals**
- **Air Force submitted its plan and reduction goals on 9 Jan 09**
 - **Provided overview of toxic and hazardous chemical reduction management**
 - **Established six reduction goals**



Key Elements of AF Hazardous Chemicals Reduction Plan

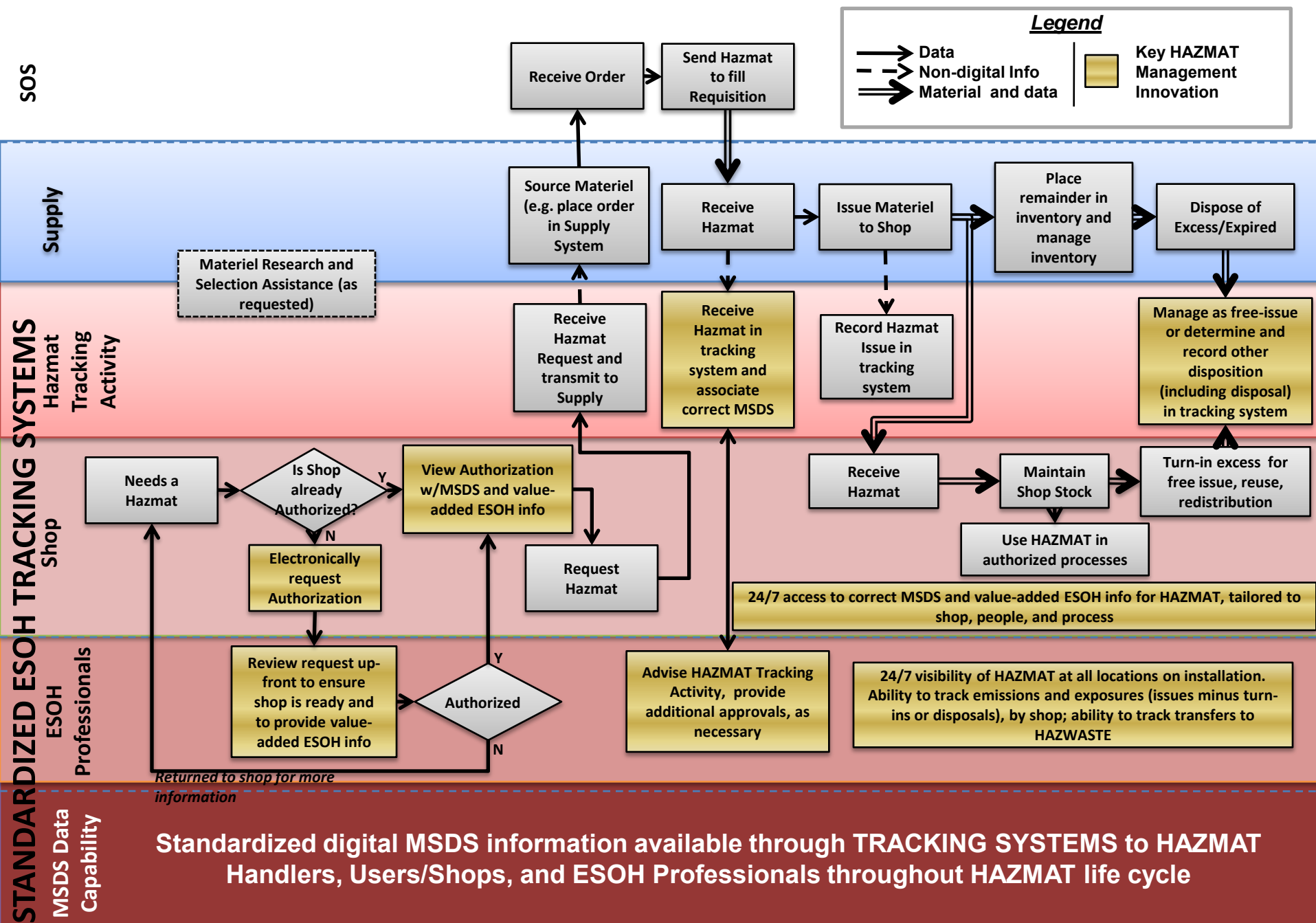
- **Integrated approach**
 - **Utilizes an EMS risk management framework**
 - **Across the weapon system, facility, and infrastructure life cycle**
 - **Responding to specific environment, safety, and occupational health (ESOH) impacts**
- **Air Force Hazardous Materials Management Process (HMMP) is identified as a key part of this approach**
 - **AFI 32-7086, *Hazardous Materials Management*, established the Air Force HMMP in 1997**
 - **Air Force has continued to improve the HMMP to reduce ESOH risks**



Key Elements of AF Hazardous Chemicals Reduction Plan

- **AF HMMP conforms to the processes institutionalized by the *DoD Hazardous Materials Management Business Process Reengineering* effort**
 - **Installation-level review and authorization of hazardous processes**
 - **Tracking and reduction of hazardous chemicals**
 - **Establishment of controls that protect people and the environment**
- **Key planned improvements to AF HMMP**
 - **Maturing the enterprise resource planning systems that support it (EESOH-MIS, ECSS, others)**
 - **Standardized and stewarded product hazard data**
 - **Enabling better targeting and reporting of hazardous material reductions**

AIR FORCE SIMPLIFIED LIFE-CYCLE HAZMAT MANAGEMENT





Planned ESOH/HMMP Improvements



Applied to ESOH

**Work Unit “Process”
Lowest Common Denominator**

**Driver to Define Process?
“Material Authorization”**

**Transform From “Material” to
Process Authorization**

- **Agree On a Common Data Point**
- **Build On the Common Framework**
- **Share Data, Information, Knowledge**
- **Use Stewarded Data Sets**

**Involve All ESOH Functions
In “Process Authorization”**

**Assign Stewardship to
“ESOH Data Sets”**



Planned ESOH/HMMP Improvements

- Improve Program Efficiency**
 - Focus resources to reduce high ESOH risk and measure results**
 - Understand expectations/priorities and measure results**
 - Increase confidences in control/evaluations utilizing enterprise evaluations**
- Provide standardized process impact/hazard evaluations**
 - Maximize enterprise evaluations to better recognize, evaluate, and control non-standard operational conditions**
 - Integrate HAZMAT authorization into ESOH evaluations**



AF Toxic and Hazardous Chemical Reduction Goals

GOAL 1: Reduction of Lead Content in Desktop Personal Computers (PCs), Laptops, Liquid Crystal Displays (LCDs)

Chemicals	Baseline Year	Baseline Quantity	Goal
Lead content in desktop PCs, laptops, and LCDs purchased under the Air Force Information Technology Commodity Council (AFITCC) Quarterly Enterprise Buy (QEB)	2005	Estimated 76,798 pounds of lead content installed in AFITCC QEB-purchased desktop PCs, laptops, and LCDs in use across Air Force	By 31 Dec 2009, 99% of all AFITCC QEB-purchased electronics used across the Air Force will be lead-free



AF Toxic and Hazardous Chemical Reduction Goals

GOAL 2: Elimination of Lead in Fleet Vehicle Tire Weights

Chemicals	Baseline Year	Baseline Quantity	Goal
Lead used in Fleet Vehicle Automobile Tire Weights	2007	At least 10,000 pounds of lead tire weights installed on Air Force fleet- vehicles	100% elimination of installed lead tire weights by 2012



AF Toxic and Hazardous Chemical Reduction Goals

GOAL 3: Reduction of the use of chromate conversion coatings as a bare surface treatment in depot-level painting of USAF aircraft

Chemicals	Baseline Year	Baseline Quantity	Goal
Chromate conversion coatings (hexavalent chromium, phosphoric acid, hydrofluoric acid, potassium ferricyanide, etc) used as bare surface treatment in depot-level painting of USAF aircraft	2003	49,000 gallons per year	70% reduction in annual procurement and use by 31 Dec 2012



AF Toxic and Hazardous Chemical Reduction Goals

GOAL 4: Elimination of HCFC-225g usage in cleaning of aircraft oxygen systems and equipment

Chemicals	Baseline Year	Baseline Quantity	Goal
HCFC-225g used to clean aircraft oxygen systems and equipment	2008	4,542 pounds	100% elimination by 1 Jan 2015



AF Toxic and Hazardous Chemical Reduction Goals

GOAL 5: Reduction in Aerospace Hydraulic Fluid Procurement and Waste Generation

Chemicals	Baseline Year	Baseline Quantity	Goal
Aerospace Hydraulic Fluids -- Multiple chemicals: oils, esters, polyalphaolefins, glycols, butanol, silicones, aromatic hydrocarbons, etc.	2007	246,219 gallons per year	65% reduction in annual new aircraft hydraulic fluid purchases by 31 Dec 2015



AF Toxic and Hazardous Chemical Reduction Goals

GOAL 6: Reduction of Greenhouse Gas (GHG) Emissions from Facility Energy

Chemicals	Baseline Year	Baseline Quantity	Goal
GHG emission [Combustion-related GHGs (CO ₂ , CH ₄ , N ₂ O)]	2003	Facility energy usage ~ 71,840.70 MMBTU (~8,384,910 MT CO ₂ e)	Reduce GHG emissions through a reduction in energy intensity by 3% annually, or 30% by 2015 relative to 2003



New Policy: Minimizing the Use of Hexavalent Chromium



ACQUISITION,
TECHNOLOGY
AND LOGISTICS

THE UNDER SECRETARY OF DEFENSE
3010 DEFENSE PENTAGON
WASHINGTON, DC 20301-3010

APR - 8 2009

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS

SUBJECT: Minimizing the Use of Hexavalent Chromium (Cr^{6+})

Cr^{6+} is a significant chemical in numerous Department of Defense (DoD) weapons systems and platforms due to its corrosion protection properties. However, due to the serious human health and environmental risks related to its use, national and international restrictions and controls are increasing. These restrictions will continue to increase the regulatory burdens and life cycle costs for DoD and decrease materiel availability. OSD, DoD Components, and industry have made substantial investments in finding suitable replacements for Cr^{6+} for many of the current DoD applications. In particular, a number of defense-related industries are minimizing or eliminating the use of Cr^{6+} where proven substitutes are available that provide acceptable performance for the application.

This is an extraordinary situation that requires DoD to go beyond established hazardous materials management processes. To more aggressively mitigate the unique risks to DoD operations now posed by Cr^{6+} , I direct the DoD Military Departments to take the following actions:

- Invest in appropriate research and development on substitutes.
- Ensure testing and qualification procedures are funded and conducted to qualify technically and economically suitable substitute materials and processes.
- Approve the use of alternatives where they can perform adequately for the intended application and operating environment. Where Cr^{6+} is produced as a by-product from use or manufacture of other acceptable chromium oxides, explore methods to minimize Cr^{6+} production.
- Update all relevant technical documents and specifications to authorize use of the *qualified* alternatives and, therefore, minimize the use of materials containing Cr^{6+} .
- Document the system-specific Cr^{6+} risks and efforts to qualify less toxic alternatives in the Programmatic Environment, Safety, and Occupational Health Evaluation for the system. Analyses should include any cost/schedule risks and life cycle cost comparisons among alternatives. Life cycle comparisons should address material handling and disposal costs and system overhaul cycle times/costs due to any differences in corrosion protection.
- Share knowledge derived from research, development, testing and evaluations (RDT&E) and actual experiences with qualified alternatives.



New Policy: Minimizing the Use of Hexavalent Chromium

- **“Extraordinary risks” to material availability and health**
- **Requires Program Executive Officers to provide by-process justifications for continuing to use Cr6+**
 - **Cost effectiveness**
 - **Technical feasibility**
 - **Environment, safety, and occupational health risks associated with Cr6+ or substitute materials**
 - **Material availability of Cr6+ and the proposed alternatives over the projected life span of the system**
 - **Corrosion performance difference of alternative materials or processes as determined by agency corrosion subject matter experts**
- **HMMP is going to be key to ID'ing Cr6+ processes and demonstrating reductions in the use of Cr6+**



Conclusion

- **Reinvigorated focus on reducing and managing toxic and hazardous chemicals**
 - **EO 13423 under President Bush**
 - **Continuing under President Obama**
 - **OSD and AF must demonstrate that management practices are in place and reductions are occurring**
- **In the AF, EMS and the HMMP provide the management practices**
- **HMMP process improvements and tracking system improvements will support**
 - **Targeting of high-impact toxic and hazardous chemicals**
 - **Demonstration of reductions**



Questions

